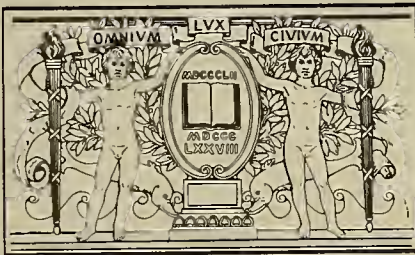


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THE CITY OF BOSTON'S RESPONSE

TO

STATE TAX COMMISSIONER,

NICHOLAS L. METAXAS

KEVIN H. WHITE
Mayor

BERNARD F. SHAPIRO
Commissioner of Assessing

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It is, furthermore, the City's position that Boston cannot continue to prosper under the burden of an excessive property tax, which, as the Massachusetts Special Commission to Develop a Master Tax Plan states "is the most regressive of all those in the entire tax structure and a real deterrent to economic expansion." *

Faced with these inequitous conditions, and while continuing to take legislative and constitutional action to change the tax structure, Boston recognizes its obligation to respond to the request from the Massachusetts Commissioner of Corporations and Taxation resulting from the recent Massachusetts Supreme Judicial Court decision handed down in the case of Town of Sudbury and Others v.s. Commissioner of Corporation and Taxation. The City is strongly committed to the concept of assessing and taxing property as fairly and equitably as possible. In recent years, the City has carefully examined nationally accepted methods of property assessment, and has concluded that from a position of equity, uniformity, and positive economic benefits, the income approach is the fairest and most reasonable method of assessment for the City of Boston. It is the purpose of this report to present arguments and explanations for this decision and to set forth a process to develop a method to implement this approach on all classes of property.

In the course of this report, we will describe the current assessing system, examine the criteria and economic theory for capitalization of income as a measure of value, describe alternative capitalization methods and formulas, present a legal brief in support of income capitalization,

* Massachusetts Senate Bill No. 1298: First Interim Report of the Special Commission to Develop a Master Tax Plan. Tentative Proposals for a Master Tax Plan for the Commonwealth, February, 1971, p. 10.



and propose a process by which the income approach can be effectively, uniformly, and judiciously implemented in the City of Boston.

In order to understand the reasons for choosing capitalization of income as the best method of assessment for Boston, it is important to view property assessment within the context of the particular composition of Boston's tax base, and to take note of the economic and demographic patterns which have affected the tax base and which continue to have significant impact today.

First, one can note that long term trends in the value of real property in Boston reflect the periods of change in the City's economy. In the last 20-25 years, Boston's economy has been heavily influenced by a decline in manufacturing industries and a large increase in service industries. Manufacturing industries are marked by intense capital investment, and because of this, contributed significantly to the tax base. Their decline has eliminated much taxable property. Boston's thriving service sector, on the other hand, is not marked by intense capital investment. While the service sector maintains the offices, banks, schools, and hospitals which vitally contribute to the City's economy, because of its low capital investment, it has not resulted in a proportionate increase in value to the City's tax base. Basically, then, Boston's recent economic growth has not been reflected in its fiscal condition.

Another major factor influencing the economic composition of Boston's tax base has been the steady decrease in Boston's population to the surrounding suburbs, a trend which has just recently begun to level off. This development has brought with it a situation common to most cities where thousands of commuters pour in to work each day only to leave at night.

These suburban dwellers working in Boston have had a tremendous impact on the necessary level of City services. Police, fire, sewer, traffic, water, parking and sanitation services are but a few of the many services Boston is obliged to provide commuters, while being unable to tax them commensurately for the cost of the services they consume. In effect, Boston is required to finance and maintain facilities and services far in excess of its own population needs.

A third major factor in the composition of Boston's tax base is the high percentage of state-mandated tax-exempt property in the City. The value of this property has increased dramatically in just the past few years from \$990 million in 1964 to \$2272 million in 1974.* While some of this increase represents a substantial contribution to Boston's economy in terms of jobs, income generation, and capital investments, it is nevertheless a fiscal liability. The increase in exempt property as a proportion of the total valuation can be seen in the following table:**

VALUATION OF TOTAL PROPERTY CITY OF BOSTON (Millions of Dollars)				
<u>Year</u>	<u>Taxable</u>	<u>Exempt</u>	<u>Total</u>	<u>Exempt as a Percentage of Total</u>
1974	\$1,784	\$2,272	\$3,829	60 %
1972	1,716	1,934	3,650	52 %
1970	1,617	1,725	3,342	51.6 %
1968	1,424	1,268	2,692	47.1 %
1966	1,368	1,118	2,486	44.9 %
1964	1,324	990	2,314	42.8 %
1962	1,323	917	2,240	40.9 %
1960	1,337	876	2,213	39.6 %

* City of Boston, Assessing Department, Annual Reports, 1960-1973. Preliminary Broad Sheets, 1974.

** Ibid.

The significance of these figures is distressing in terms of Boston's property-based tax structure. The effect of this imbalance is that the taxpayers of Boston are directly subsidizing tax-exempt institutions by bearing the costs of public services consumed by them, while their growth reduces the City's capacity to raise revenue.

Added to the costs of subsidizing commuters and tax-exempt institutions is the substantial growth in the price tag of municipal services over the past few years. Mainly resulting from personnel costs, collective bargaining agreements, inflation, and long overdue capital improvements, but also in response to the expanded role of municipal government as a socio-economic problem solver, the cost of City government in Boston rose from \$312 million in 1964 to \$520 million in 1974. For a variety of reasons, Boston's government is affected by an escalating demand for public services, which imposes a continued strain on an already inadequate and overburdened property tax structure.

Despite these pressures, Boston has consistently endeavored to minimize its municipal costs and has succeeded in keeping property taxes to a constant percentage of the City's gross product. As can be seen from the following table,* Boston's property tax revenue has remained very consistent in relation to the economic output of the City.

PROPERTY TAXES AS A PER CENT OF GROSS PRODUCT
IN THE CITY OF BOSTON

(Millions of dollars of constant value at 1970 prices)

<u>Year</u>	<u>Product</u>	<u>Property Tax</u>	<u>Property Tax as Per Cent of Gross Product</u>
1960	\$6,803	\$229	3.37 %
1963	7,214	205	2.84 %
1971	9,357	275	2.94 %
1973	9,600	285	2.89 %

* Boston Redevelopment Authority, Research Department, Boston's Tax Strategy: The Fiscal Experience of the City, May, 1974.



In addition, despite the increase in tax burden, Boston's economy is sound and prospering.

This economy is important to the health of the Commonwealth. Although Boston contains only 11 per cent of the Commonwealth's population, approximately 33 per cent of the State's gross product originates from Boston. Furthermore, state income, corporations, and sales taxes generated in Boston account for roughly \$440 million of the State's revenue.* Thus, Boston plays a vital role in contributing to the Commonwealth's economy and revenue structure.

Recognizing the valuable relationship between the Commonwealth and its capital city, Boston believes that it is in the best interests of the State to support tax policies that will alleviate Boston's tax burden because Boston's economic growth so directly benefits the Commonwealth. Consequently, those of us committed to the future of Boston must consider the very serious issue of the effect of 100 per cent revaluation on the City, and the possibility that a further disbalance of the property tax distribution could have definite deleterious effects. Because, as Boston's Home Rule Commission has already noted, "the lack of a solid financial base is the most serious problem facing the City." **

* Boston Redevelopment Authority, Research Department, Boston's Tax Strategy: The Fiscal Experience of the City, May, 1974, p. 39.

** Final Report of the Home Rule Commission, City of Boston, April, 1971, p. 110.



II. STRUCTURE AND OPERATIONS OF THE BOSTON ASSESSING DEPARTMENT

The City of Boston recognizes that the optimum operation of the Assessing Department is critical to its fiscal survival, as property valuations define the tax base that is of such importance in generating revenues necessary to finance Boston's government.

With this awareness, the City's Assessing Department has for many years used primarily three traditional methods of property assessment. One is the cost-replacement method which takes into account the estimating of the replacement cost of the building new, less estimated accrued depreciation, if any, plus the estimated land value.

This approach has been used particularly in the service and special purpose properties.

A second method which has been used primarily as a general guide is the sales-market data method. The market approach to value is the method of appraisal in which the value of property is inferred from sales of comparable property. Value is measured by observing what comparable properties are selling for in the market.

The third and most useful method of property assessment, which Boston's Assessing Department has traditionally employed for income producing properties and the one which we now propose to use in a more sophisticated manner is income capitalization. This method involves estimating the potential net annual income or obtaining the actual net annual income of a property and dividing this by the capitalization rate. The approach and formula employed for computing this rate are explained in detail further in this report.



In a continuing attempt to make Boston's Assessing Department more efficient and fair, there have been several organization reforms in the last 25 years which have shaped the Department's structure, with the most recent still in progress.

For many years, the Assessing Department was headed by a five member board of assessors. The Department was comprised of the Board of Assessors, five deputy assessors, and 49 part-time street assessors, as well as a clerical staff. A study found that "the Assessing Department is operating under antiquated legal and regulative restrictions," and "is inadequately equipped to perform its functions equitably and efficiently." *

In response to this study, the Assessing Department was reorganized. A single administrator and a three-member Board of Review was established in an attempt to institute an additional level of evaluation and professionalism in the department. Several years later, a further improvement was instituted by a City ordinance which gave the Assessor the authority to divide the department into a Statistical Research Division and other divisions "such as he shall judge necessary for the proper conduct of the department."

Then a major change occurred in a City Ordinance of 1961, (Chapter 1, Document 3) which initiated further reforms in the department's organization. This included the requirement that the three-member Board of Review be composed of two members of the department (one from the newly-created Real Estate Appraisal Division and one from the Statistical Research Division) and a layman. Two associate commissioners of assessing were authorized to assist the commissioner in his assessing and abatement responsibilities.

* Cuthbert E. Reeves, Assessing Department Administrative Survey, City of Boston, 1948, p. iv.



In addition, assessors became full-time personnel. This established the basic structure of the department as it is today.

A final major reform in the Assessing Department has evolved as a result of a 1971 report commissioned by the Finance Commission of the City of Boston. This report, by the Jacobs Company of Chicago* found that the department still suffered from organizational inadequacies. It observed that the units of the department were not actually constituted as formal divisions, but rather had evolved over the years as operating sections that functioned more or less independently in carrying out the required activities of the department. It also noted that the Assessing Department had been unsuccessful in keeping up with various technical developments, such as data processing innovations that could be beneficial to efficiency. The report further stated that these organization problems, coupled with a severe lack of information availability, had led at times to the use of inconsistent appraisal techniques throughout the City.

As part of their report, a list of recommendations was prepared and presented to the City. One of their principal suggestions was the establishment of a comprehensive technical/professional information system to accomodate all data essential to the department's operation and the maintenance of this data in data information banks. Another recommendation was that standard procedures for uniform property appraisals in Boston should be developed within the context of the three accepted appraisal approaches: Market Value, Income Capitalization and Replacement Cost.

Also, various personnel management recommendations were included, such as the establishment of a public education program for the department.

* The Jacobs Company, Inc., The Assessing Function in Boston, Boston, Massachusetts, June, 1971.



Among the suggestions was the annual publication of studies and reports on the changes occurring in the assessments and values of different properties.

These findings and recommendations were carefully studied by a special committee appointed by the Mayor and, at the present time, many of their recommendations including all of those noted here have been or are in the process of being incorporated into Boston's Assessing Department's operating structure.

Currently, the Boston Assessing Department consists of the Commissioner of Assessing, two Associate Commissioners, a Board of Review, seven district directors, assistant assessors and supervisors, a research staff, a clerical and engineering staff, an auto excise division, a personal property division, and a social service division.

The Commissioner of Assessing has jurisdiction over the entire department and has final responsibility on all abatements. He personally reviews all abatements over \$100 thousand value. The two Associate Commissioners review other abatement requests and have been given the authority by the Commissioner to determine the validity of abatement applications. The Associate Commissioners are directly responsible for the abating of auto excise tax bills and have full responsibility for clause abatements. One of the Associate Commissioners is also directly responsible for the Administrative Division of the Department.

The Board of Review examines every application for abatement upon which a recommendation has been made by District Directors. The Board also has the responsibility, upon request of a taxpayer, to review and evaluate abatement applications which have been initially denied by the District Directors. The Board's finding is then transmitted to the

Commissioner or Associate Commissioners who act upon the recommendation. This is a large and expanding volume of work. There has been an increase in abatement applications of about 10 per cent for the past five years, and presently amounts to about 7,500 cases.

The district assessors are directly responsible for annually assessing and reviewing the approximately 107 thousand taxable parcels in the city.

The appraisal division of the department has recently hired 16 new research analysts and is currently in the process of implementing a use code classification of all parcels of land. This use code is a major component in the Assessing Department's computerized information system that is being instituted. In addition to this essentially descriptive classification, a history file is being developed on all parcels. The two components will result in a classification system that can identify such items as the number of abatements by type of structure and value of property, and the distribution of types and values of properties in the city. These components are being prepared with the assistance and co-operation of several city departments. They will result in a central source of information that will be valuable from many perspectives.

The computerized information system is one of the major recommendations in the Jacobs report. The development of this system illustrates a major commitment by the Assessing Department to improving its efficiency and quality.

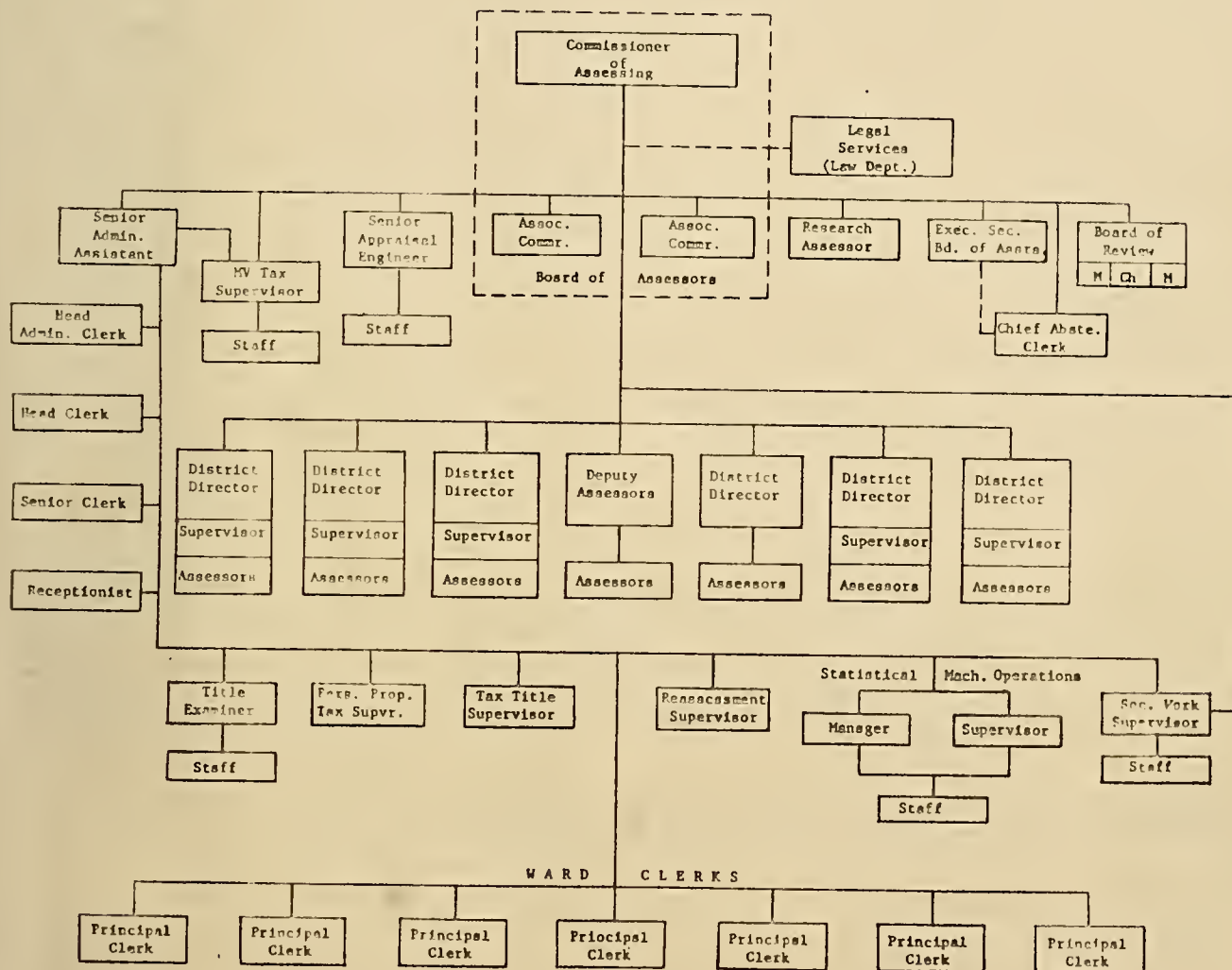
Another major recommendation called for a standard and uniform property appraisal method to be established for Boston. This is now being formulated. The description and development of this method, the income approach, is explained further in this report.



In addition, numerous personnel policies and functions have been initiated, including the development of a public education program. Plans are in process for a thorough review of all tax-exempt property to examine its use and occupancy in order to assure that it is being used for legitimate charitable purposes.

And, finally, plans are underway for the presentation and publication of Assessing Department information and procedures, of which this report is the beginning.

ORGANIZATIONAL STRUCTURE - ASSESSING DEPARTMENT



III. ECONOMIC BACKGROUND:

CRITERIA AND THEORY ON THE INCOME APPROACH TO VALUE

Pragmatic as well as theoretical considerations favor the capitalization of income approach as a measure of value of property in Boston. In a city in which more than 90 per cent of taxable property is income producing, the income approach to value is most appropriate in view of both practical considerations of measurement as well as long-held criteria of economic theory. In those cities where income-producing property makes up the overwhelming bulk taxable property, rentals provide a readily available, continuous, and verifiable flow of information on the income stream. In contrast, there are serious limitations in the use of the replacement cost approach to value in view of the difficulty of measuring physical deterioration and functional and economic obsolescence. And there are problems with the use of the market sales approach to value when the types of property is diverse and the number involved in sales transactions in a given year is limited.

A broader consideration is the weight of economic theory which holds that the income yield of capital is the soundest measure of value.

PRAGMATIC CONSIDERATIONS: INCOME CAPITALIZATION VERSUS ALTERNATIVE MEASURES OF VALUE

Income-producing properties represent the overwhelming mass of the taxable property in Boston. In 1975, the assessed value of residential structures with two or more dwelling units, commercial structures, and industrial structures, made up 90 per cent of the total assessed value of taxable property. See Table. Single family homes comprised only 10 per cent of the total assessed value of taxable property.

For these properties, a continuous flow of information is available on gross rental income, operating expenses and maintenance costs, and floor area, providing a perpetual data base for the calculation of net income and capitalized value.

In contrast, fewer than 4,000 out of the approximately 100,000 parcels of taxable property in the City of Boston are involved in sales transactions in any one year, providing a limited and less reliable base for valuation of all taxable properties.

TABLE
ASSESSED VALUE OF TAXABLE PROPERTY IN BOSTON,
1975

<u>Property Type</u>	<u>Millions</u>	<u>% Composition</u>
One-Family dwellings	\$ 159.0	10.1 %
Two-Family dwellings	114.4	7.4 %
Three-Family dwellings	107.9	7.0 %
Residential structures with four or more dwelling units	222.6	14.3 %
Mixed residential and commercial	65.4	4.2 %
Commercial structures	675.0	43.4 %
Industrial structures	175.8	11.3 %
Other	36.7	2.3 %
<u>TOTAL</u>	<u>\$1,556.9</u>	<u>100.0 %</u>

Source: City of Boston, 1975 Fiscal Assessors' Real Estate Valuation List



It is generally recognized there are too few sales of different types of commercial and industrial property to provide an appropriate base for valuation. Even if there were a sufficient number of sales in any single year, there would be no assurance of a sufficient number of sales in consecutive years. This problem is crucial since annual updating of values must occur to prevent market values from becoming obsolete.

Even where sales data exists, there are problems in establishing accurate sales prices because of syndication and tax position considerations. (See Section IV).

The alternative of using replacement cost as a measure of value is made difficult in Boston by the unique nature and broad variety of the range of properties, as well as the problems of measuring physical obsolescence and functional and economic obsolescence.

An Appraiser Manual View of the Key Role of Income Capitalization in Comparison with Replacement Cost or Market Value in Valuation

Treating the question of the property tax and valuation, in their definitive work published in 1974, as part of the University Case Book series (Oliver Oldman, Professor of Law, Harvard University, and Ferdinand P. Schoettle, Professor of Law, University of Minnesota, State and Local Taxes and Finance; Text, Problems and Cases), Oldman and Schoettle distill the weight of judgement, experience, and legal precedent drawn from the American Institute of Real Estate Appraisers, The Appraisal of Real Estate, and related legal cases.

On the three approaches to property valuation, their views are as follows:



On Replacement Cost. (p. 141)

The value indicated by the cost approach will be valid if the land value estimate is sound, if the reproduction cost has been estimated correctly, and if the estimate of depreciation from all causes is correct. But physical deterioration and functional and economic obsolescence cannot be measured precisely....Therefore, a final estimate of value, based solely on reproduction cost less depreciation plus the value of the land, is subject to serious limitations....

On Market Value (pp. 141-143)

The application of this approach produces an estimate of value of a property by comparing it with similar properties of the same type and class which have been sold recently or are currently offered for sale in the same or competing areas. The processes used to determine the degree of comparability involves judgement concerning their similarity with respect to many value factors such as location, construction, age and condition, layout and equipment....

Although the market value approach has such wide application as a method of estimating value and is of first importance in condemnation appraising, there are factors which do or can limit its usefulness.

1. No provision is made for arriving at an estimate of value in those cases where no comparable properties have been sold in recent months or years.
2. No two properties are ever exactly alike...
3. Depreciation affects value...because houses are dissimilar...they depreciate at varying rates....
4. Amenities, being intangible qualities, are difficult to compare. The value of otherwise similar houses may not be the same....
5. Learning the exact conditions attending each sale is essential so that the validity of the sale as comparative data may be substantiated....Many motivations lead to the transfer of real property at figures unrelated to the property's market value.



On Market Value (continued)

6. Properties can vary considerably in their appointments and equipment...All of these factors must be considered in the comparative process...The more factors to be compared and adjusted, the greater the number of decisions and judgements the appraiser must make...and...the greater the incident of error.

On the Income Approach (pp.143-144).

In using the income approach, the appraiser is concerned with the present worth of future benefits of a property. This is generally measured by the net income which a fully informed person is warranted in assuming the property will produce during its remaining useful life.

The income approach has its greatest usefulness in the valuation of income producing property because the average investor in such property purchases it in order to receive future benefits (income).



Economic Theory Holds the Income Yield of Capital as the Most Appropriate Measure of Value

The thread of economic theory, ranging from Alfred Marshall, one of the earliest theoreticians, to Paul Samuelson, one of the moderns, has consistently held the income yield of capital as the most appropriate measure of value.

Paul A. Samuelson, Economics, McGraw Hill: Eighth Edition, (Chapter 30, Interest and Capital):

The value of capital is equal to annual receipts divided by the interest rate

$$V = \frac{I}{R}$$

where V is value of capital

I is net income

R is interest rate

Capital and its use provides a perpetual income stream; interest is a measure of the annual flow of this income stream....

Investment and capital formation is the principal fulcrum for increasing productivity and raising living standards and the income stream yield of capital is a measure of the productivity of capital....The interest rate which measures the income stream, serves to signal the allocation of savings to alternative capital uses.

Alfred Marshall, Principles of Economics, (1890) (from Alfred A. Ring, The Valuation of Real Estate):

Refinement of economic theory under Alfred Marshall stressed utility and the income approach to value measured as the present worth of future rights to income.

Market value in contrast measures short-run market forces of supply and demand.

The value range of property is set by the present worth of the anticipated net income stream.



Robert Kevin Brown, Real Estate Economics ("The Classic Concept of Value", Chapter 6).

One of the characteristics of earnings expectancy is that it can be presently purchased for a lump sum.

Income....is the primary factor in valuation.

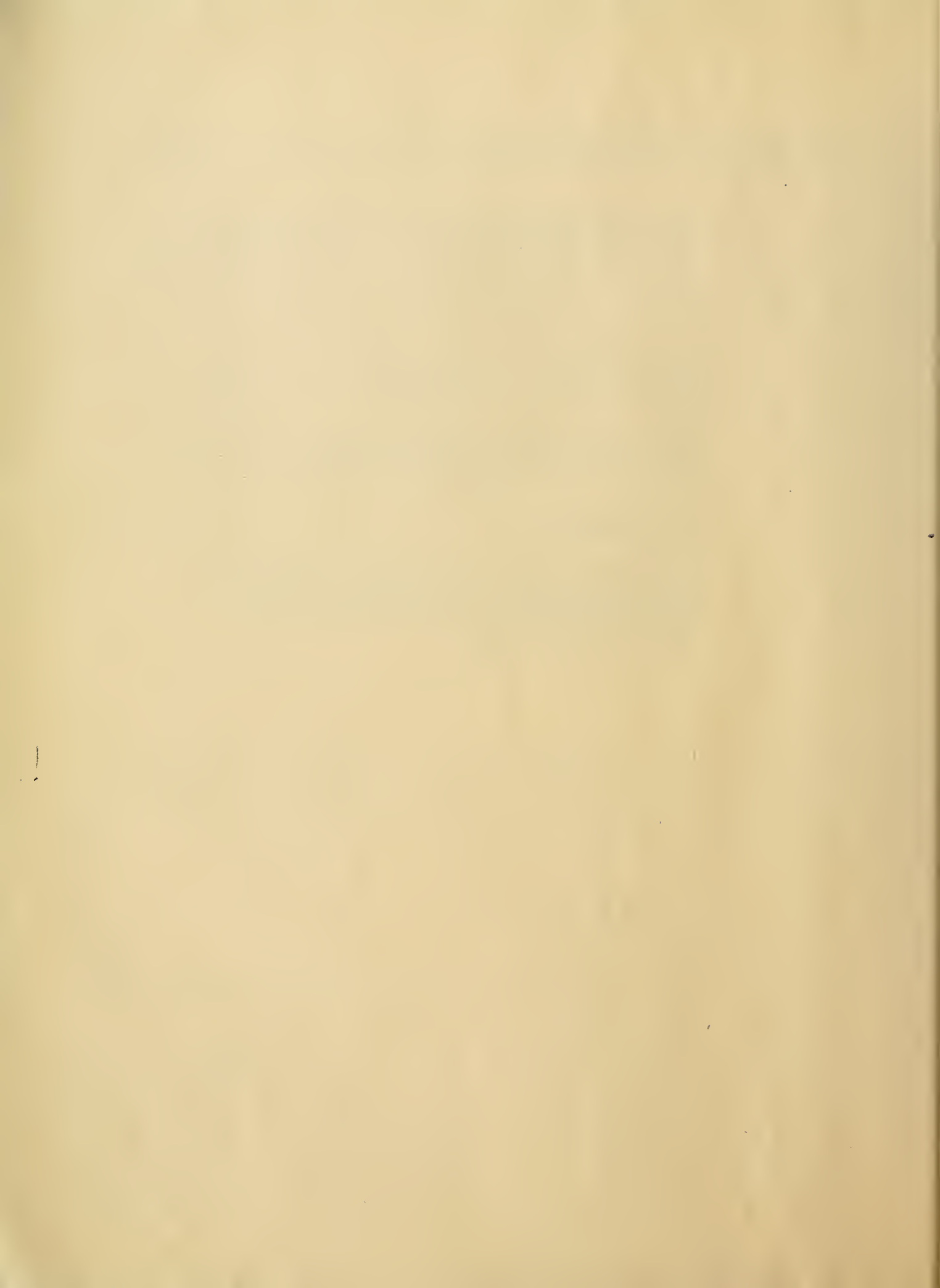
Value equals present worth of future benefits.

What is Market Price? Market Price is defined by the F.H.A. as the amounts that buyers actually pay.

What is Market Value? Market Value is defined by the F.H.A. as the price buyers should pay for a property for its long-term use.

Therefore, market value and market price may not be the same thing.

We may say, then, that the appraiser's opinion of value will be, not what the property can be sold for, but the price that should be paid for its long-term productiveness.



The Boston Case

Boston's mainly income-producing properties provide a continuous flow of information on gross rental income, depreciation and operating expenses, which can be objectively used to estimate value through the income approach. Alternative measures of value do not have a comparable information base, and require subjective judgement difficult to monitor or verify.

For the fewer than 10 per cent of taxable properties made up of owner-occupied single family homes, there is a well developed body of information and analysis facilitating the calculation of imputed income and imputed cost. Our national income statistics, which measure the "aggregate of earnings of labor and property which arise in the current production of goods and services by the Nation's economy," includes the "imputed net rental returns to owner occupants of non-farm dwellings." *

And there is sound logic for this treatment, and for the use of the income approach as the measure of value of single family owner-occupied dwellings. Owner-occupied homes are subject to the same types of costs of operation, maintenance and repair as is the case for income producing rental properties. Reasonable and fair treatment, therefore, requires that these out-of-pocket, as well as imputed costs of homeowners be deducted from their imputed rental income in the measurement of value through the income approach.

Indeed, employing the comparable sales approach in appraising single-family owner-occupied homes would impose severe and, in fact, unfair economic penalties on homeowners. Previous research suggests that owner-

* U.S. Department of Commerce, Office of Business Economics, The National Income and Product Accounts of the United States, pp. viii, ix.



occupied homes would experience substantial increases in tax bills under such a full-value reassessment.* A change in tax burden with no change in city services will alter the attractiveness of the properties in the real estate market. There will follow changes in market values. The precise extent of capitalization of taxes into market values is variable; however, that such capitalization occurs is undeniable.

Capitalization of tax bill changes for owner-occupied homes is easily discussed in terms of monthly costs. The monthly outlay of a homeowner includes two major items, the mortgage payment (principal and interest) which depends on the price of the house, and a payment for city services through local property taxes. In addition, of course, there are cash outlays for insurance, utilities, and needed maintenance.

Since revaluation leads to no direct change in house characteristics or public services, each house should continue to be worth approximately the same in terms of monthly outlays. To the extent that taxes increase for a particular house relative to other housing alternatives in and near Boston, the increase will precipitate a decline in the purchase price the house can command.

Consider, for example, a house with a purchase price leading to mortgage payments of \$250 monthly, and assume that monthly taxes were \$150 before revaluation. The total monthly cash outlay for the owner is \$400. Assume that the initial full-value assessment (based on a purchase price that would yield a \$250 mortgage payment) increases its tax bill by 50 per

* O. Oldman and H. Aaron, "Assessment-Sales Ratios Under the Boston Property Tax," National Tax Journal, March 1965; and D. Holland and O. Oldman, Estimating the Impact of 100 Per Cent of Market Value Property Tax Assessments of Boston Real Estate, The Boston Urban Observatory, August, 1974.



cent, to \$225 monthly. Since there has been no change in the house or its services, the house should still be worth approximately \$400 per month. Therefore, the \$225 monthly tax bill allows only \$175 per month for a mortgage payment. The purchase price implied by a \$175 monthly mortgage payment is, of course, far below that implied by a \$225 monthly mortgage payment. The increase in taxes is thus capitalized into the value of the house; the new value is well below its reassessed value. As a result, when the "comparable sales" approach is used:

1. the initial assessment and the tax burden on the house are inequitable;
2. the "full-value" assessment is obsolete; and
3. there is a substantial loss of property value and owner equity.

A longer-term problem arises with assessments performed subsequent to the initial full-value assessment. Because these assessments will take into consideration the loss in market values occasioned by the initial revaluation, they will lower the subsequent tax bill, and thus raise market values through tax capitalization, though not to initial levels. It is clear that assessments that closely monitor values must go through several phases of adjustment until an equilibrium between assessed and market values is reached.

The above process is not only long and costly, but it is dangerous as well. Fluctuating property values and tax burdens will cause uncertainty in the market for owner-occupied homes. This may induce higher turnover of properties and psychologically-motivated losses of property value.

Some empirical studies of revaluation have documented tax capitalization for residences. An analysis of property values immediately after a



1965 revaluation in Missoula County, Montana, showed relative losses of property values ranging from five to twenty times the relative change in tax burdens.* A 1967 revaluation in San Francisco resulted in immediate declines of residential market values by thirteen to seventeen times the change in tax burdens.**

The income approach can prevent disruptive market value fluctuations that result from the use of the comparable sales approach. Once the new assessment on a property is set by the income approach, subsequent tax burdens will not change (unless the property changes). This is because imputed rents and operating expenses will remain the same for the property, and the capitalization rate will remain the same; therefore, the computed cash value will remain unchanged, and subsequent fluctuations in property values do not result. Property values and tax burdens remain stable rather than fluctuating over long periods of time.

* J. Wicks, R. Little and R. Beck, "A Note on Capitalization of Property Tax Changes," National Tax Journal, September, 1968.

** R. Stafford Smith, "Property Tax Capitalization in San Francisco," National Tax Journal, June, 1970.



IV. LEGAL ARGUMENT FOR THE INCOME APPROACH

Pursuant to the mandate of the Supreme Judicial Court in Town of Sudbury v. Commissioner of Corporations and Taxation, Mass. Adv. Sh. (1974) 2405, and the request of the State Tax Commissioner by letter dated December 31, 1974, to submit a plan to implement full and fair cash value, the City of Boston submits the following arguments to support the position advanced in its plan.

I. CAPITALIZATION OF INCOME IS THE BEST METHOD OF VALUING INCOME PRODUCING PROPERTY

In the Sudbury case, the Supreme Judicial Court held that the State Tax Commissioner should more actively and uniformly enforce the provisions of G.L. c. 59, S38, that:

The assessors of each city and town shall at the time appointed therefor make a fair cash valuation of all the estate, real and personal, subject to taxation therein.....

There are three recognized methods for determining "fair cash valuation": sales or market data, the income approach and reproduction cost less depreciation. The Supreme Judicial Court has said that the price for which a particular property was sold is usually the best evidence of value. First National Stores, Inc. v. Somerville, 358 Mass. 554, 561. But we have not found a case in which the Court has held that the sales approach is more reliable than the capitalization of income method where income-producing property was involved. Indeed, the Court has recognized that the income approach is a reliable method of determining fair cash value. Assessors of Quincy v. Boston Consolidated Gas Company, 309 Mass. 60, 64.



The only statute (G. L. c. 58, §10) which describes how assessors should value property gives equal dignity to all three methods set out above:

All generally accepted methods for determining values of real and personal property, including a comparison of sales prices, capitalization of income and replacement of cost less depreciation, shall be available to the (state tax) commission.

The capitalization of income method of valuation involves subtracting the expenses of operating and maintaining property from the rent it has earned and dividing the difference by a capitalization rate. As is set out in Section III of this presentation, the capitalization method provides the most reliable basis for valuation of income-producing property. Actual figures are constantly available with respect to each property; value does not have to be imputed from extraneous transactions. What, for example, does the sale of an obsolete building on Summer Street to a developer who intends to demolish it say about the value of the new commercial development across the way? When the State Street Bank Building was sold, the price was undoubtedly affected by considerations wholly irrelevant to the earning capacity of the building, such as tax shelters, inside trading, economic opportunity or cash needs. (A fuller list of extraneous considerations is set out in an appendix to this brief). See Bradley v. Hooker, 175 Mass. 142, 143. Amory v. Commonwealth. 321 Mass. 240, 256-258.



The 1972 Census of Government states the problem:

The relative scarcity of commercial and industrial sales demonstrates difficulties often encountered not only in valuing such realty but also in identifying precisely the relative tax burden it incurs. Measurable sales seldom happen, and when they do occur, there is often required extended analysis of sales components and conditions, such as the effect of personal property involvement, the presence or absence of goodwill, the impact of leasehold improvements, and the like. Without such analysis the sales have questionable validity as market criteria and questionable utility for effective rate calculations.

All of the reasons which led to the abandonment of the property tax on intangibles and the shift to income taxation apply to the valuation of income-producing property by the capitalization method.

II. THE METHOD USED FOR DETERMINING THE FAIR CASH VALUE OF THE DOMINANT TYPE OF PROPERTY IN A CITY OR TOWN SHOULD BE USED FOR ALL PROPERTY IN THE CITY OR TOWN.

Assessors are required to make "a reasonable effort to apply the statutory standard of full and fair cash value on a non-discriminatory and systematic basis, giving weight to all pertinent criteria." First National Stores, Inc. v. Board of Assessors of Somerville, 358 Mass. 554, 562. This duty arises from the Constitution of the Commonwealth. Part II, c. 1, S 1, Art. 4, empowers the General Court to impose "proportional and reasonable assessments, rates and taxes, upon all the inhabitants of, and persons resident, and estates lying, within the said Commonwealth...." Article 10 of the Declaration of Rights provides "Each individual....is obliged to contribute his share to (its) expense...." These provisions compel uniformity, equality and equity.



The statutory and constitutional requirements of comparable assessments and uniformity and proportional and reasonable assessments compel the use of a uniform method within a municipality. The method selected should be the most relevant to the predominant type of property in a city or town. If a town is composed of predominantly residential property, then the sales would be the most appropriate method for valuing it. If the property in a city is predominantly income generating, then the income approach should be used.

Since 90 per cent of the property in the City of Boston is income-producing it is appropriately valued by the income approach. Since that approach generally produces valuations which are not identical with sales prices, it would be manifestly unfair to value non-income producing property -- principally residences -- by sales prices. See Shopper's World, Inc. v. Assessors of Framingham, 348 Mass. 366, 371. One can find rented houses of all varieties in all parts of the City. An appropriate rent and standard expenses can be applied to a house which is not rented. See Jordan Marsh Co. v. Assessors of Malden, 359 Mass. 106, 110.

We have recently observed the outrage felt by the citizens of Worcester where the valuation of residential property was abruptly increased as compared to commercial property, a result, no doubt, of the application of different methods of valuation within the same municipality.

Since there is readily available data on all types of property within the City of Boston and since most of the property within it is income producing, the approach to valuation of the City of Boston most likely to achieve the constitutional goal of "proportional and reasonable" taxation is valuation by capitalization of income.



III. THERE IS NO CONSTITUTIONAL REQUIREMENT THAT ONE METHOD OF ARRIVING AT FAIR CASH VALUE BE USED FOR EACH CITY AND TOWN IN THE COMMONWEALTH.

In the case of Cheshire v. County Commissioners of Berkshire, 112 Mass 386, 389, the Court said that the constitutional provision for "proportional and reasonable" taxes

...requires that all taxes levied under its authority be 'proportional and reasonable,' and forbids their imposition upon one class of persons or property at a different rate from that which is applied to other classes, whether the discrimination is effected directly in the assessment or indirectly through arbitrary and unequal methods of valuation.

Of course, the requirement of 'proportional and reasonable' taxes applies only within a single taxing jurisdiction. Certainly there cannot be equality in tax burden among different cities and towns, since each one has different revenue needs to be met by taxation. The requirement of the Constitution of the Commonwealth, Part III, c. 1, S 1, Art. 4, and the Declaration of Rights, Art. 10, S 1, c. 1 of "proportional and reasonable" assessments and equality in local taxation pertain only with regard to those parcels within a particular city or town. State-wide uniformity applies only to state-wide taxes.

The Supreme Court in the Sudbury case, supra, required all cities and towns to assess at full and fair cash value. It did not order that the method used in all cities and towns of the Commonwealth be uniform. G. L. c. 58, S 10, clearly contemplates that various methods may be used.

It is essential to keep in mind the distinction between the constitutional requirement for proportional and reasonable taxation and the statutory requirement in G. L. c. 58, S 9, for equalization of valuation among various municip-



alities with which the Sudbury case deals and which it requires the Commissioner more aggressively to enforce. The latter can be achieved, if necessary, by the more suitable application of a percentage to the value arrived at by local assessors. It is not necessary to compel such resounding changes within each city and town as those which struck Worcester.



APPENDIX

Example of a guide to screening sales from raw sales data. Such sales should be excluded or carefully checked to insure compliance with the "willing buyer-seller" test.

1. Sales between members of the immediate family.
2. Sales in which "love and affection" are stated to be part of the consideration.
3. Sales between a corporation and its stockholder, its subsidiary, its affiliate or another corporation whose stock is in the same ownership.
4. Transfers of convenience; for example, for the sole purpose of correcting defects in title, a transfer by a husband either through a third party or directly to himself and his wife for the purpose of creating a tenancy by the entirety, etc.
5. Transfer deemed not to have taken place within the sampling period.
6. Sales of property conveying only a portion of the assessed unit, usually referred to as apportionments, split-offs or cut-offs; for example, a parcel sold out of a larger tract where the assessment is for the larger tract.
7. Sales of property substantially improved subsequent to assessment and prior to the sale thereof.
8. Sales of an undivided interest in real property.
9. Tax sales.
10. Sales to guardians, trustees, executors, and administrators.
11. Judicial sales such as partition sales.
12. Sheriff's sales.
13. Sales in proceedings in bankruptcy, receivership or assignment for the benefit of creditors and dissolution or liquidation sales.



14. Sales to or from the United States of America.
15. Sales of property assessed in more than one taxing district.
16. Sales to or from any charitable, religious or benevolent organization.
17. Transfer to banks, insurance companies, savings and loan associations, mortgage companies, or any other lien holder, when the transfer is made in lieu of foreclosure.
18. Sales where purchaser assumes more than two years of accrued taxes.
19. Acquisitions, resale or transfer by railroads, pipeline companies or other public utility corporations for right-of-way purposes.
20. Transfers of property in exchange for other real estate, stocks, bonds, or other personal property.
21. Sales of commercial or industrial real property which include machinery, fixtures, equipment, inventories, goodwill when the values of such items are indeterminable.
22. Sales of property, the value of which has been materially influenced by zoning changes where the latter are not reflected in current assessments.
23. Sales which for some reason other than specified in the enumerated categories are not deemed to be a transaction between a willing buyer, not compelled to buy, and a willing seller, not compelled to sell.
24. Sales occurring within the sampling period but prior to a change in assessment practice resulting from the completion of a recognized revaluation or reassessment program.



V. DEVELOPING A PROCESS TO IMPLEMENT THE INCOME APPROACH TO VALUE

A. CAPITALIZATION METHODS AND FORMULAS

In order that its application of the income approach to value be equitable and sound the Assessing Department of the City of Boston, under the direction of an independent appraisal consultant, plans to examine several options. This section will describe those options as they pertain to the specific problem of developing appropriate methods of income capitalization.

As a first step, the traditionally accepted approaches to income capitalization will be identified and reviewed. This process will involve an extensive examination of the valuation literature, among which would include materials from the International Association of Assessing Officers and the American Institute of Real Estate Appraisers.

The basic formula for capitalization of income is

$$\frac{I}{R} = V$$

where

I = income derived from property,

R = capitalization rate, and

V = capitalized value.

This formula remains the same regardless of the particular capitalization approach chosen. However, while the particular approach does not affect the formula, it does affect the value of the inputs. The two basic approaches to capitalization are (1) straight line and (2) annuity.* Each of these approaches makes different assumptions about how the value of a building should be recaptured, or, in other words, how depreciation should be calculated.**

* A third approach is the "sinking fund" method. It is not discussed here because it is rarely used in practice.

** In real estate investment, it is assumed that the value of the building will depreciate to zero. Therefore, in order for an investor to be compensated for his loss, a depreciation factor must be built in. This is commonly called recapture because it is a means of recapturing the investment.



Before the particulars of these approaches are discussed, the role of depreciation in determining the value of property should be noted. In appraisal for tax purposes, the capitalization rate is composed of three factors: (1) rate of return, (2) rate of depreciation, and (3) tax rate.* The sum of these rates form the overall capitalization rate, which in turn is divided into net income to yield an estimate of value. Thus, the rate of depreciation - as well as the other component rates - affect the final estimate of value.

The straight line approach to depreciation assumes that a building will depreciate in equal annual amounts. A building with a 40-year useful life, for example, will depreciate at an annual rate of $1/40$, or 2.5 percent. Let us assume that a property generates a net income of \$10,000. At an interest rate of 8 percent, this property would be capitalized at 10.5 percent**, resulting in a present value of \$95,238. As can be seen from the table below, depreciation of the building's value occurs in equal amounts, but at increasing percentages of the remaining value.

* The tax rate would be the rate arrived at under full valuation, which may or may not be the same as Boston's current tax rate. Reference to the tax rate throughout this section shall mean the "full value" tax rate.

** For the purposes of a simple illustration of the straight line method, an effective tax rate was not included in the capitalization rate. Instead, it is assumed that taxes were deducted from gross income, as an expense, as would be the case if an investor were capitalizing income.



TABLE

DEPRECIATION OF AN INVESTMENT OF \$95,238 OVER A 40-YEAR PERIOD UNDER THE STRAIGHT LINE METHOD

End of Year	Annual Income	8% Interest	2.5% Depreciation	Remaining Value
				\$ 95,238
1	\$ 10,000	\$ 7,619	\$ 2,381	92,857
2	10,000	7,619	2,381	90,476
3	10,000	7,619	2,381	88,095
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
40	<u>10,000</u>	<u>7,619</u>	<u>2,381</u>	<u>0</u>
Total	\$400,000	\$304,760	\$95,238*	0

The above illustrates an income flow that is constant over the life of the property. One authority, however, contends that the straight line method of depreciation should be used if a property's income is expected to decline.** The illustration below presents such a case. Here, as with all examples of income decline under the straight line approach, the amount of the property's income decline is directly related to the computation of interest on the property's remaining value.

TABLE

DECLINING INCOME BASED ON STRAIGHT LINE DEPRECIATION

End of Year	Annual Income	8% Interest on Value Balance	2.5% Amortization	Remaining Value
				\$95,238
1	\$10,000	\$7,619	\$2,381	\$92,857
2	9,810	7,429	2,381	90,476
3	9,619	7,238	2,381	88,095
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
40				

* Detail does not add to total due to rounding.

** International Association of Assessing Officers, An Introduction to The Income Approach to Value, 1969.



Another source contends that in practice incomes rarely decline in equal annual amounts - as illustrated above - and therefore, to use the straight-line method to justify that assumption, is questionable.* This will be resolved with the guidance of expert opinion.

The other approach to depreciation is expressed by the annuity method of capitalization.** This method requires that a discounting process be used as a means of finding value. Assuming the previous data, that is, a net income of \$10,000, a rate of interest of 8%, and a useful life of 40 years, one finds by consulting a present value table that the worth of the property is \$119,246. The table below illustrates the way in which depreciation is treated under this method.

TABLE
DEPRECIATION OF AN INVESTMENT OF \$119,250 OVER A 40-YEAR
PERIOD UNDER THE ANNUITY METHOD

Year	Annual Income	8% Interest on Remaining Value	Depreciation	Remaining Value
				\$119,246
1	\$10,000	9540	460	118,786
2	10,000	9503	497	118,289
3	10,000	9463	537	117,752
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
40	.	.	.	.

As can be seen, although the total income remains stable, the amount of interest income declines while the amount of income provided for depreciation increases. The depreciation values are amounts, which when invested over the remaining useful life of the building at an interest rate of 8 percent, will result in the remaining value of the building. The annuity method assumes, in fact, that the portion of income provided for depreciation will be invested by the owner at a rate of interest comparable to that being earned by the property itself.

*See Alfred O. Ring, The Valuation of Real Estate, (New Jersey, Prentice Hall, 1970) pp.273

**Also known as the Inwood method.



As a final look at this method, it is worth noting that under the annuity approach, the value of a property may be determined by the basic capitalization formula:

$$V = \frac{I}{R}$$

Using \$10,000 for income, and .08386 for the capitalization rate (.08 for interest and .00386 for depreciation*), one arrives at a value of \$119,246 - the same value that was derived through the present value table.

Comparing the two approaches - straight line and annuity - one finds that the value figures that each produces differ significantly. The reasons for this difference lie in the way in which depreciation is treated. The greater the proportion of income set aside for depreciation, the less the amount of income available for interest earnings. And, the lower the interest earnings, the lower the final capital value. Each of these methods is suited to particular conditions. With the guidance of an appraisal consultant, the City of Boston intends to analyze the suitability of these methods in light of the unique characteristics of Boston property.

The other standard capitalization techniques provide a means of identifying which portion of total value is attributable to land and which portion of total value is attributable to improvements. These techniques may be used in conjunction with either the straight line or annuity methods, and like these methods, their selection must be carefully considered since they are based on very different assumptions. The techniques are (1) the land residual technique (2) the building residual technique, and (3) the property residual technique.

The land residual technique assumes that the value of the building improvements is known, while the value of the land is unknown.

*Derived by dividing the first year's depreciation of \$460 by the total value of \$119,250.



To determine the value of the land, a portion of the total net income of the property is attributed to the land, and this net income is then capitalized into value. The separate values of land and building are then summed for an estimate of total value.

To illustrate, assume that

1. the value of the building improvements is \$90,000
2. the estimated remaining economic life is 40 years
3. the rate of interest is 8%
4. the rate of depreciation is 2.5%
5. net income is \$10,000

In determining the total value of the property, as well as the value of the parts, one would go through the following exercise:

Net Income.....	\$10,000
Building Rate of Capitalization	
Interest rate	.08
Depreciation	.025
	<u>.105</u>
Income Attributable to Building	
$I = V \times R = \$90,000 \times .105 =$	9,450
Income Attributable to Land.....	550
Land Rate of Capitalization*	
Interest Rate	.08
Land Value, $V = I/R = 550 \div .08 =$	6,875
Property Value:	
Land.....	\$6,875
Building.....	\$90,000
	<u>\$96,875</u>

In the above example, land value was essentially derived from building value. The building residual technique operates under the reverse assumption; that is, the land value is known, and the building value is derived from that. And, finally, the property residual technique assumes that reliable estimates of neither land nor building can be made, and that rather, the property must be valued as a single entity.

*No rate of depreciation is included here since according to appraisal theory land does not depreciate.



If the assumptions about depreciation are the same (i.e., either straight line or annuity is chosen), one should achieve substantially the same value result regardless of which residual technique is chosen.* It is the availability of data and the suitability of each technique for particular property conditions that will determine the final choice.

In the above section, we have presented the options that the City of Boston will face when choosing a method of capitalization. The illustrations indicated that choosing a capitalization method is not a trivial matter; the two methods of depreciation, for example, make very different assumptions and result in substantially different capitalized values. It is essential, therefore, that an analysis of the approaches be made, and an understanding of their suitability for particular conditions be obtained. Such an analysis will be a major component of the equalization plan for the City of Boston.

Once the accepted approaches to capitalization are identified and analyzed, the capitalization rate (s) must be selected. This is not a trivial matter, for the rate is the principal determinant of value. The following section will present the options that will be examined when choosing the capitalization rate.

From the point of view of the real estate investor, the capitalization rate is ordinarily composed of two factors: The rate of return, and depreciation rate. Taxes, as well as operating and management costs, are deducted as an expense from income, and the resulting net income is capitalized into value. In finding value for tax purposes, however, taxes are not deducted as an expense, but rather included as an element in the overall capitalization rate.

*Oliver Oldman and Ferdinand P. Schoettle, eds. State and Local Taxes and Finance. (Mineola, New York: Foundation Press, 1974) p.177.



The reason for this is that the amount of taxes, since they depend upon value, cannot be given a role in determining value.* The components of the capitalization rate for tax purposes, therefore, consist of a (1) rate of return, (2) rate of depreciation, and (3) tax rate.** The method for choosing each of these elements will be discussed below.

The rate of return is a measure of the return or yield on the investment. There are several ways in which the interest rate may be chosen, and these are commonly known as the (1) summation method, (2) the band of investment method, and (3) the comparison method.***

Under the "summation" method, the appraiser builds up an overall interest rate by assigning different rates to the component parts. The starting point is the safe rate, or the rate an investor would receive on a high liquidity, maximum security investment. The current rate on government bonds is often used as the "safe rate". Added to that is a rate assigned to a "risk" factor, a "management" factor (not to be confused with the actual expense of management), and a "non-liquidity" factor.**** An overall interest rate constructed by this method might look like the following:

Safe Rate.....	6 %
Risk Rate.....	1.5%
Management Rate.....	1 %
Rate for non-liquidity.....	<u>1.5%</u>
Total interest rate.....	10.0%

The "band of investment" method uses information on mortgage financing as a means of constructing the interest rate. It is based on the assumption that the return on the investment must totally cover the mortgage debt and a return on equity.

*City of New Brunswick vs. State of New Jersey, Division of Tax Appeals, 189A.2d 702, 706-707 (1963)

**International Association of Assessing Officers, op cit.

***Ibid There are several other approaches, including the Ellwood method, that are relevant, but for reasons of brevity are not discussed in this text.

**** Ibid.



Three items are needed for applying this method: (1) the rate of mortgage interest available, (2) the rate of return required on equity, and (3) the loan to value ratio. For example, assuming a first mortgage obtained at 9 percent interest covering 80 percent of value, and a 10 percent return on equity, the computation of the interest rate would be as follows:

	<u>Percent of Value</u>	<u>Rate</u>	<u>Product</u>
First Mortgage	80	9	7.2
Equity	<u>20</u>	10	<u>2.0</u>
Total	100%		9.2

The interest rate here, then, is 9.2 percent.

The final method to be discussed is the "comparison" method. basically, this method is based on income and sales price data of properties comparable to the one being appraised. The relationship of net income (before depreciation) to sales price is expressed in a percentage that is considered to be a rate of interest. A property whose net "income" is \$1,000, for example, and which sold for \$10,000, has a rate of interest of 10 percent. The relationship between net income and sales price is sought for as many comparable properties as possible. The subsequent rates are analyzed, and an appropriate rate applied to the property in question.

The above methods of selecting a rate of interest range from the highly subjective (summation) to the highly objective (band of investment). It is likely that given a sample property, these methods would produce different results. For this reason, Boston's equalization plan will build in a process to evaluate the methods for choosing a capitalization rate. This process will entail a thorough literature review under the direction of an appraisal consultant.

The second component of the capitalization rate is the rate of depreciation. The approaches to depreciation - straight line and annuity - were discussed fully earlier in this section.



As indicated, these approaches make very different assumptions about the treatment of depreciation, and therefore, generate different estimates of value. It should again be stressed that Boston's plan is to analyze which method is appropriate under which conditions.

The final component of the capitalization rate is the tax rate. By definition, the tax rate is the tax levy expressed as a percentage of value. Not knowing what the value of property will be at revaluation, and, under the capitalization approach, needing an effective tax rate to find value, the question becomes: How to determine tax rate? The equation below, where X represents the tax rate, the numerator represents the total tax levy for the City, and the denominator represents the value of taxable property for the City, solves the problem nicely. It is assumed that toward the end of the equalization process, all variables will be known but X, the tax rate. At that point, one would solve for X.

$$X = \frac{\text{Total Tax Levy}}{\left[\frac{\text{Net Income of Capitalizable Properties}}{\left(\frac{\text{interest rate} + \text{Depreciation Rate}}{+X} \right)} \right] + \text{Value of other properties}}$$

In the foregoing section, we have presented the choices and complexities that pertain to the selection of the capitalization rate. The capitalization rate is the crucial determinant of value, so its selection must be very careful indeed. At the risk of redundancy, the plan for Boston will include an analysis of the methods and formulas for capitalization in order that they be applied in a manner appropriate to the properties in the City.

Besides the capitalization rate, the other crucial determinant of value is income - that amount which is capitalized into value. The following section shall discuss the steps the assessor must undertake in developing a workable concept of income.



As a first step, the matter of what constitutes income will need to be defined. Traditionally, income for capitalization purposes refers to net income, that is, gross rental income less vacancies and expenses. On the expense side of the equation are included such items as operating and management expenses; fixed expenses, such as building insurance; and reserves for replacement. Not included as expenses are mortgage principal and interest payments, income tax payments, depreciation charges, and, in the case of appraising for tax purposes, real estate taxes. The appraiser/assessor, then, will need to identify and review the components of income and expenses, in order to know what items to include or exclude in the determination of net income.

Once the components of net income are understood, the appraiser will need to develop a framework for evaluating the differences between economic and contract rents. In the capitalization process, it is assumed that economic rents should form the basis of capitalized value. Economic rents are defined as "that maximum net market rental....which a property can produce over a given period of time...Contract rent, on the other hand, is that rental income ascribable to the property as a result of contractual commitments...."* It is the appraiser/assessor's responsibility, therefore, to be able to identify when and if the contract rent on a property owner's cash flow statement differs from that property's economic rent. In the residential sector in Boston, where over half of the City's income producing units are under rent control, the concept of economic rent takes on new dimensions. Thus, an analysis of how rental control affects economic rent will also be undertaken.

*See Alfred Ring, op. cit., p.208.



Another task that is crucial to the capitalization process is the projection of the income stream. Capitalization is a means of determining the present worth of future income, so clearly, the pattern of future income is important to establish. There are several choices that are open to the appraiser in projecting future income. One assumes that income will decline in equal amounts as occurs in the straight line method of depreciation. Another assumes the pattern of income as indicated by the annuity method of depreciation. Finally, the actual pattern of income generation can be studied over the total useful life of particular property types.* The implications of these options will be examined as a part of the re-valuation planning process.

In addition to projecting the quantity of income, the appraiser/assessor will need to evaluate the quality and duration of the income stream. Such items as the age and repair of property, the particular lease provisions, and the extent of space competition will need to be examined. In practice, the evaluation of the quality of the income stream is an important component in selecting the capitalization rate. It deserves mention here, however, as one task that will be undertaken in the analysis of income.

SINGLE FAMILY HOUSING

The issues raised in the above discussion apply to conventional capitalization problems. Since the City of Boston is proposing that the capitalization approach be applied to single-family homes, there are additional points that need to be raised that apply only to the single-family category. The principal question in this regard is: Since single-family homes are not, as a rule, income-producing, how does the City of Boston intend to apply the capitalization approach?

*An attempt to measure income decline by types of real property was made by F.M. Babcock in The Valuation of Real Estate (New York: McGraw-Hill, 1932).



In answer to this question, the City, under the direction of its appraisal consultant, will develop a method for imputing rents to single family housing. As a guide, those single-family homes that are currently leased will provide rental information. Since there are so few single-family houses that are renter-occupied, however, a more rigorous method needs to be developed. One way of tackling the problem is to impute a rental income on the basis of carrying charges and a factor for return; another is to develop rental data on the basis of rentals of comparably graded multi-family housing. Whatever method is developed for imputing a fair economic rent to single-family housing, a careful analysis of capitalization methods will need to be undertaken, as described in the previous section.

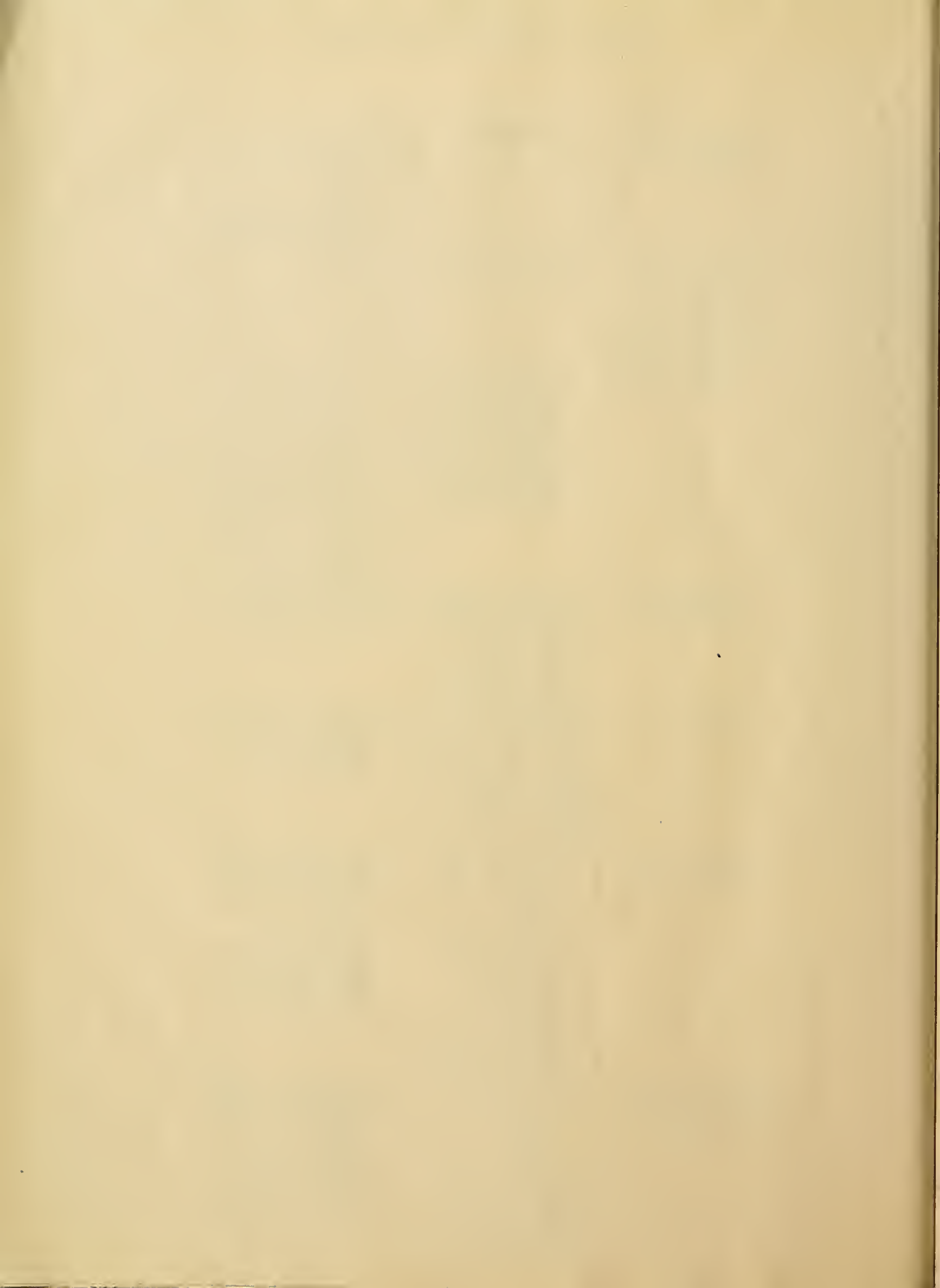
SUMMARY

It was the intent of this section to present the complexity of options that will be available to Boston in developing a sound approach to capitalization. Several different methods of capitalization were presented, as well as different methods for choosing a capitalization rate.

In the course of reviewing these options and evaluating their suitability for particular types of conditions, many tasks will need to be undertaken, and many information sources investigated. The objectives, tasks, and information sources are explained further in the following section.



Objectives	Tasks	Information Sources
1. Identify existing capitalization techniques	Literature review	Material from: - International Association of Assessing Officers - American Institute of Real Estate Appraisers - The Appraisal Journal - Other
2. Analyze suitability of above techniques for particular conditions.	Literature review	Same as above
3. Select capitalization rate (sum of following rates) a) select interest rate	- Literature review - Survey of mortgage interest rates - Survey of rates of return on non-real property investment - Examination of risk factors for different property types and locations	Same as above and - Federal Reserve Bulletin's reports on real estate credit - Major mortgage lenders in Boston - Boston landlords and real estate investors - Metropolitan Mortgage Bureau sales reports - Reports on returns on other forms of investment - Cash flow statements on sample Boston properties
b) select depreciation rate	- Literature review - Examination of useful life of various property types - Examination of physical deterioration, functional and economic obsolescence.	Same as (1) above and - Useful life tables - Field observation
c) select ive tax rate	Algebraic computation, where known variables are: total net income of capitalizable property; interest rate; depreciation rate; value of non-cap property; total tax levy	- Appraisal consultants - Heads of City Auditing and Budget Departments
4. Develop net income data for income producing property	- Literature review - Define components of "income" and "expense" - Examine operating and expense statements of Boston properties - Determine differences between economic rent and contract rent - Project net income over time - Evaluate quality of income stream.	Same as (1) above and - BOMA reports on income and expenses - Actual cash flow statements - Mortgage lenders - Ryan & Elliott reports on vacancy rates - Codman Survey of new office construction - Rent control records
5. Develop net income data for single family housing	- Collect data on sales prices mortgage interest rates expenses for single family housing - Develop formula for imputing rent to single family housing - Other tasks same	- Metropolitan Mortgage Bureau data on sales prices - Thrift Institution officers - Thrift Institution reports on interest rates. - rent control records



B. APPLICATION OF THE EQUALIZATION APPROACH

Once the Assessing Department has thoroughly examined and evaluated the different capitalization methods, the assessor will determine which methods are most suitable for Boston's special needs, and will establish a process of implementation.

As a first step toward accomplishing this goal, the City's Assessing Department will undertake a major study to ascertain the most efficient, reasonable and equitable method of conducting and institutionalizing city-wide equalization based on the income approach. Independent appraisal consultants will play an important role in conducting the study.

This study will include the following components:

1. A thorough examination of the Assessing Departments' existing organizational structure, including an analysis of Department personnel's ability to maintain a city-wide equalization based on the income approach
2. An analysis of staff training needs and proposals for satisfying these needs; including types of training materials and methods.
3. Recommendations for carrying out a major public education effort to help inform Boston's taxpayers both of the process of property taxation in general and of the income approach.
4. An in-depth review of all available data sources for property characteristics, both physical and income-related, and the development of a method to collect this data on a regular basis.



5. A comparative study of the computer processing requirements necessary to utilize the new expanded data system and to implement and update the income approach in order to guarantee continuation of equalized assessment.
6. Analysis of methods to institutionalize a system to continuously update information and assessment, by field analysis and computer processing capabilities.
7. The establishment of a realistic timetable, upon completion of this study by the Assessing Department, for the implementation of city-wide equalization and assessment by the income approach.

The following paragraphs describe these study components more fully, as well as noting the activities that will follow the study.

1. Assessing Department Organization.

A thorough examination and detailed review of all staff functions in the assessing department will be conducted, including individual staff interviews and an operational analysis of all staff functions. The results of this review will be examined in light of the staffing requirements for city-wide equalization and assessment on the income approach in order to determine the existing staff structure's ability to efficiently implement this approach. The final result of review will be recommendations for reorganization and/or additional staffing.

In addition to determining staff additions and structural reorganization of the department, the staff review will also reexamine the qualifications of all personnel in an attempt to match previous staff responsibilities with any new personnel needs for the development, conversion to, operation and maintenance of, the equalization program.



Once an equalization program is underway, the organization and staff responsibilities of the Assessing Department will be continuously monitored, and readjusted, if necessary, to adequately and efficiently maintain the new program. This will include an on-going review of, and analysis of, the relation between actual employee job descriptions and their new roles, if any, in the maintenance of the new program. As necessary, job upgrading will take place as the staff begin to operate the new system and as new procedures, authority, and lines of responsibility are established.

2. Staff Training

In conjunction with the staff review and organizational analysis, a study of the Assessing Department staff training needs will also be conducted. the purpose of this study will be to ascertain any personnel functions under the equalization program for which present staff may not be adequately trained or not have adequate experience. Once these needs are determined, the Assessor will examine various methods of training and will establish a system to provide both detailed and general training in the techniques and procedures of the equalization program.

Expert appraisal consultants will be hired as necessary following this training study, to provide any necessary technical and operational training required by the program. Initially, supervisory staff will be trained in all phases of the program to minimize organizational confusion, with line staff to be trained in their specific areas of responsibility both by the supervisor and outside consultants.

Training will both precede and continue through implementation of the equalization program. Following the equalization survey and initial operation of the new equalization program, training needs will be re-examined in order to assure maintenance of the program and the establish-



3. Public Education Needs

The City of Boston's Assessing Department is faced with two major public education problems during the implementation of its equalization program. First, as indicated in the Jacobs report of 1971, the public is generally uninformed about the practice of property taxation and assessment in Boston and in most other cities throughout the nation. Taxation is a complex process and does not figure strongly in the daily lives of most people.

And second, the equalization program proposed in the plan, based on an equitable application of the income approach to all classes of property, is a system of taxation which is not readily understood by the average homeowner.

In order to correct these two problems, and to insure a high level of public cooperation and support for the equalization program, the City will prepare a major public education effort to describe the process of property taxation in general and to explain the advantages, effects, and operation of the income approach in particular.

This effort will begin prior to implementation of the equalization program and will continue throughout it. Included will be mailings to all taxpayers; neighborhood meetings in Little City Halls with District Assessors and the Assessor to explain first-hand the effects of the program in specific neighborhoods; preparation and publication of simple, concise explanations of the system of property taxation, and in particular, the income approach; appearances by the Mayor and key department heads before service and special interest groups to explain the equalization program; circulation of public interest news stories to local papers to assure high level of public awareness of the equalization program and an understanding of the income approach; and any other techniques of public education which can become a useful part of this effort.



4. Data Source Review and Data Collection Methods

During the process of developing capitalization methods for the City's equalization program, a detailed listing of all required types of data will be developed. Once this listing is compiled, the Assessing Department must develop the sources for this data and establish an on-going system of data gathering which will provide all the necessary information for the equitable application of the income approach to all classes of property.

Sources of this data may include the Federal Reserve Bank of Boston; major mortgage lenders in Boston; Metropolitan Mortgage Bureau; landlords and real estate investors; Building Owners and Managers Association (BOMA) reports; Ryan and Elliott surveys; and any other public or private finance and real estate organizations which will be able to provide continuous data on mortgage expenses, equity returns, and expected yields rents, and expenses.

Data on construction activity available through City licensing and permit Departments will be integrated into the data gathering system as a source of detailed construction information and as an economic indicator to be evaluated for effects on economic rents, capitalization rates, and other pertinent variables.

In addition, a method of data collection from the Boston Redevelopment Authority and Rent Control Board will be developed to assure a factual basis for the determination of economic rents and expenses utilized for net incomes on property.

Finally, the Department will develop a field data-gathering system to be part of the initial equalization survey and which will become part of the Department's ongoing equalization assessment program.



This field data gathering system will be used to supplement and to verify data supplied by owners and obtained through financial community sources. Rigid field inspection will form a major part of the Department's maintenance and updating program and the method chosen for field data gathering will reflect this need.

Following the equalization survey, during which each taxable parcel will be examined, only those properties which physically change or which have a major change in income characteristics will require individual re-inspection under this program.

Land and construction data will be collected in detail and used as the means of comparing properties city-wide so that like properties throughout the City will have like revenue, expense, and capitalization into equitable values. For example, it may be determined that all single-family, two story homes with brick exterior walls, carpeting, two bathrooms, and steam heat within the same neighborhood, will rent for the same square foot rate, have like risk and expenses, and therefore should capitalize out to the same square foot or overall value. A computer system could then be used to locate all the properties in the City which fit this description and extend the same square foot or overall values to these properties quickly and efficiently.

5. Computer Processing Requirements

Once a data gathering system has been chosen, the Assessor will conduct a thorough study of the Computer Processing Systems which are most applicable to the equalization program. This study will, of necessity, include a comparative study of the City's recently implemented computer modernization information processing program with the intent of modifying the existing capabilities, programs, and hardware where necessary.



The computer programs which are finally developed must be capable of correlating and analyzing all data to determine proper income, expense, capitalization rates, and capitalization techniques, taking into consideration the various types and classes of property and the special characteristics of each of the City's neighborhoods. In addition the computer system must be set up in such a way as to protect the confidentiality of the data.

The steps in the implementation of the data processing system and the systems' planned capabilities are itemized below.

Implementation

- I. Systems study to determine parameters for total capabilities to be ultimately implemented.
- II. Analysis of existing capabilities of hardware and software interface requirements.
- III. Study of organizational structure through which existing EDP services are provided and establishment of organizational structures with which to effect computerized appraisal capability.
- IV. Organizational behavior of involved staff in assessor's office must be studied in term of training and educational programs which will make the transition to the computerization of the income approach.
- V. Implement detailed procedures and methods for the operation of the Income Approach on existing hardware and in keeping with current data processing procedures of the City.
- VI. Customizing of system to operate on equipment should be carried out following initial study of system capabilities and in coordination with responsible data processing management of the City.



Capabilities to be Provided

The Data Processing System should be capable of providing for the assessor to do the following:

1. Capture all property data with complete error detection and data validation.
2. Calculation of all values without manual calculations.
3. Provide for (6) income approaches to value.
4. Total maintenance capability through item replacement of any data element which can logically change independently of other data elements.
5. Total capability to perform annual updating of any or all properties by use of computer without manual calculations.
6. Complete statistical analysis capability for analysis of all sub strata of parcel population including graphic presentations and density plotting.

The implementation of the Data Processing System should include careful attention to the detail of forms design, particularly designed to facilitate the collection and verification processes as well as to enhance the application of the data capture process through normal input techniques.

6. METHODS TO CONTINUOUSLY UPDATE INFORMATION.

As part of the City's program to equalize assessments based on the income approach, the Assessor will develop a method in conjunction with the data collecting and data processing effort which will allow the City to maintain equalized valuations on all classes of property and update these equalized valuations on a continuous basis.

With the proper approach to computer processing capabilities and with the correct data gathering mechanism, the City should be able to adjust to value changes on a systematic basis. Such an updating system would include the capability to collect and input all data relating to income value into a computer appraisal file and, with periodic data changes through updating of input, impartially extend new income values to provide for continuous maintenance of equalization.

To maintain a complete and up-to-date data base, statistical selectors can be periodically run with the computer to detect the areas, property types, etc., which are changing. By periodically running these reports, those parcels which experience a value change can be detected and the appraisal staff selectively review only those areas which are changing. The static areas of the City will show no indications of change on statistical selectors. In addition, with a coordinated data input from the other City Departments, new physical additions and changes to property can be effectively brought to the attention of the Assessing Department and an organized and systematic review of this information can be effected.

7. TIMETABLE

The discussion above focused on elements that need to be studied before the City's equalization program could be implemented. This section outlines a timetable for the study elements and for the tasks that will be ongoing as part of the implementation process. Given adequate staff resources, some of these activities may be performed simultaneously.

<u>TASK OR STUDY ELEMENT</u>	<u>TIME</u>
1. Departmental and Staff Review	Two months initially; continued monitoring required.
2. Departmental Reorganization	Two months
3. Analysis and Selection of Capitalization Methods and Formulas	Two months
4. Development of Methods and Materials for Staff Training	Six weeks
5. Staff Training	Two months; continued monitoring required.
6. Data Source Review	One month
7. Development of Data Collection Methods	One month
8. Analysis of Computer Processing Capabilities	Two months
9. Development of Computer Processing Capabilities	Ten months
10. Development of Information System with other City Departments	Five months
11. Collection of Data on each Parcel	12 months initially; periodic review of selected parcels.
12. Processing Data for Each Parcel	Five months
13. Collecting Data for Updating	Six months initially:
14. Development of Public Education Program	Three months
15. Execution of Public Education Program	Six months initially; continued thereafter.

Total; approximately five years

